ABSTRACT:

This paper presents an automated segmentation of brain lesion from Diffusion-weighted magnetic resonance images (DW-MRI or DWI) based on region and boundary information in gray level co-occurrence matrix (GLCM). The lesions are hyperintense lesion from tumour, acute infarction, haemorrhage and abscess, and hypointense lesion from chronic infarction and haemorrhage. Pre-processing is applied to the DWI for intensity normalization, background removal and intensity enhancement. Then, GLCM is computed to segment the lesions. Different peaks from the GLCM cross-section indicate the present of normal brain region, cerebral spinal fluid (CSF), hyperintense or hypointense lesions. Minimum and maximum threshold values are computed from the GLCM cross-section. Region and boundary information from the GLCM are introduced as the statistical features for segmentation of hyperintense and hypointense lesions. The proposed method provides very good segmentation results even in a small brain lesion.